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EXAMINER	
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ART UNIT	**PAPER NUMBER**
1644	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/612,358	CRAMERI ET AL.	
	Examiner	Art Unit	
	Michael Szperka	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14 and 16-23* is/are pending in the application.

4a) Of the above claim(s) *20-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14 and 16-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/25/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's response and amendments received May 25, 2007 are acknowledged.

Claims 1-13 and 15 have been canceled.
Claims 14, 18, 19, 22, and 23 have been amended.
Claims 14 and 16-23 are pending in this application.
Claims 20-23 stand withdrawn from consideration as being drawn to a nonelected invention. See 37 CFR 1.142(b) and MPEP § 821.03, for reasons of record set forth in the restriction requirement mailed August 24, 2006.

Claims 14 and 16-19 are under examination as they read on in vitro assays for diagnosing allergic bronchopulmonary aspergillosis.

Information Disclosure Statement

2. Applicant's IDS submitted May 25, 2007 has been considered. Multiple references have been crossed out as being improper citations for lacking a publication date and indication of where the documents were published. It is noted that all of the references listed on the IDS are parts of the dissertation of Ase Borga from the Karolinska Institute, Stockholm, Sweden, which was published in 1990. It is not clear that many of the manuscripts that make up the dissertation were ever published as separate documents. Since they are all part of the dissertation, it is most appropriate to simply list the dissertation and its date and place of publication.

Claim Objections

3. The objection to claim 14 has been withdrawn in view of applicant's amendments received May 25, 2007 which spell out the abbreviation "ABPA" as "allergic bronchopulmonary aspergillosis (ABPA)" in the independent claim.

The objection to claim 19 has been withdrawn in view of applicant's claim amendments received May 25, 2007 which eliminate the duplicative nature of claims 18 and 19.

4. Claim 14 is objected to for the recitation of the abbreviation *A. fumigatus*. For the sake of clarity, it is suggested that the independent claim be amended to recite *Aspergillus fumigatus* while dependent claims continue to recite *A. fumigatus*.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 14 and 16-19 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for the reasons of record.

The office action mailed November 20, 2006 states:

> The independent claim and all dependent claims are indefinite because as currently recited it is not clear if it is the antibody or the allergen that comprises the capacity to "discriminate with 100% specificity". Further, what is the relevance of patient antibodies such that a skilled artisan knows 100% of the time that a patient has a disease, ABPA for example, but does not have a different disease such as allergy? Are the antibodies present in ABPA but not allergy, or is diagnosis based upon some other relationship and factual circumstances?
>
> Claim 18 is also indefinite in the recitation of "the IgE class, or IgE class, or subclasses thereof". The claim should not recite IgE twice, and there are no known subclasses of human IgE (Janeway et al., Figure 8.16 on page 8:19). Thus the metes and bounds of applicant's claimed invention are not clear.
>
> Claims 18 and 19 are indefinite for the recitation of "antibodies of the IgE class are determined." How is an antibody "determined"? A skilled artisan would know how to detect the presence of an antibody and would also know how to identify the isotype and possible subtypes of said antibody, but such concepts are not clearly stated in the claims as presently written.

Applicant's arguments filed May 21, 2007 have been fully considered but they are not fully persuasive.

Applicant's claim amendments received May 21, 2007 have rendered the issues surrounding dependent claims 18 and 19 moot.

Applicant also argues that:

> "As explained in the present specification, Applicants' discovery that some allergens from A. *fumigatus* only bind to antibodies from ABPA patients, but not to antibodies from non-ABPA

patients, allows the use of the present methods to discriminate between ABPA patients and non-ABPA patients."

As such, it appears that it is the claimed method, not the allergen per se, which discriminates. The antigen can either be bound or not be bound by antibody. The determining factor in the method is patient antibody since presumably the allergen is the same irrespective of the patient sample and methodology used to detect an interaction between the known allergen and patient antibodies. It should be noted that the methods as currently recited do not comprise any positive method step, such as contacting a patient sample with the allergen, that allows for "discrimination" to occur.

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. It is noted that applicant's arguments received May 21, 2007 address the three separate rejections set forth under 35 USC 112 first paragraph collectively. For the sake of clarity of argument, the three issues will be kept separate in this office action.

9. Claims 14 and 16-19 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention for the reasons of record.

The office action mailed November 20, 2006 states:

> Applicant has claimed a method based upon antibody binding to allergens that discriminates with 100% specificity between allergenic bronchopulmonary aspergillosis (ABPA) and allergic sensitization to *A. fumigatus*. A working example is disclosed wherein recombinant allergens Asp f4 and f6 are used to screen for reactive antibodies in sera obtained from ABPA and *A. fumigatus* allergy patients. The data disclosed indicate that antibodies to f4 and f6 were detected in the ABPA patients but were never detected in the *A. fumigatus* allergy patients. As such a method that uses allergens f4 or f6 to detect the presence of patient antibodies that bind said allergens discriminates with 100% specificity between ABPA and *A. fumigatus* allergy (see particularly Table 4 and lines 3-13 of page 15). The amino acid sequence for f4 and f6 are also disclosed by SEQ ID number (SEQ ID NO:4 and 2 respectively).
>
> The breadth of applicant's claims is not limited to these two allergens, but encompass the use of any "ABPA-related recombinant allergen." It was known in the art that discriminating between ABPA and *A. fumigatus* allergy is difficult since antibodies to many *A. fumigatus* allergens are detected in both conditions (Little et al. and Moser et al., of record on the 7/2/03 IDS, see entire documents). Applicant's claimed

method uses "ABPA-related recombinant allergens" for antibody binding, a genus of molecules of which *A. fumigatus* allergens are only a subset. The recited genus reasonably encompasses recombinantly made wild-type *A. fumigatus* allergens as well as derivatives which differ in sequence due to truncations, substitutions, and internal deletions, as well as molecules that cross-react with antibodies that are only found in ABPA patients (see particularly lines 7-34 of page 4). The specification does not disclose any epitopes of *A. fumigatus* allergens that are bound by antibodies from ABPA patients but not *A. fumigatus* allergy patients and the specification does not appear to teach what structure or structures are required of molecules recognized only in ABPA patients.

Antibodies can bind a wide variety of structures, such as amino acids, nucleic acids, carbohydrates and small organic molecules (Janeway et al., pages 2:2-2:4). It is noted that "ABPA-related recombinant allergens" need not be polypeptides since other molecules, such as nucleic acids, can be made using recombinant techniques. It is known that all antigens (i.e. molecules that can be bound by antibodies) are not allergens, and that there is no art recognized method to distinguish allergic from non-allergic molecules on an *a priori* structural basis (Bumenthal et al., in Allergens and Allergen Immunotherapy, pages 37-50, see entire document, particularly the last sentence of the third full paragraph of page 39). Even when epitopes know to be important for binding to IgE have been identified, it is not predictable how changes to such sequence influence antibody recognition (Burks et al., Eur. J. Biochem, 1997, 245:334-339, see entire document, particularly the top right of page 338). Indeed, Colman teaches that even single amino acid changes to a polypeptide can completely abrogate antibody binding (of record on the 7/2/03 IDS, see entire document, particularly the paragraph that starts in the right column of page 33). The recombinant allergen that is used in the claimed method must be capable of binding to antibodies present in patient sera, wherein said patient generated an antibody response based upon a prior encounter with native *A. fumigatus* allergens. Given that the breadth of applicant's claims read on molecules that differ in sequence from native *A. fumigatus* polypeptides and the teachings of the art that even a single amino acid change in a polypeptide can eliminate antibody binding, it does not appear that the claimed method is predictable when using recombinant allergens that differ in sequence or structure from native *A. fumigatus* allergens.

Therefore, give the breath of applicant's claimed method, the limited number of working examples, the lack of guidance as to what structure must be maintained by "ABPA-related recombinant allergens" for use in the recited methods, and the art recognized unpredictability in maintenance of antibody binding to non-identical structures, a skilled artisan would be required to engage in undue trial an error to make and use the full breadth of applicant's claimed invention.

Applicant's arguments filed May 25, 2007 have been fully considered but they are not persuasive. Applicant argues that the specification discloses two antigens, f4 and f6, which are bound by ABPA patient antibodies but are not bound by antibodies from patients comprising *A. fumigatus* allergy, and that when this knowledge is coupled with screening methods discussed in the specification, a skilled artisan could practice the claimed invention without undue experimentation.

This argument is not persuasive because as discussed in the rejection of record, the breadth of the claimed invention reads on unknown *A. fumigatus* antigens as well as mutants of disclosed antigens. The art of record indicates that IgE binding to antigens (such that they are then by definition allergens) is unpredictable, with even single amino acid changes leading to abrogation of the antibody-allergen interaction (Blumenthal et al., Burks et al. and Colman). Further, others such as Little et al. and Moser et al., of record, attempted to identify antigens that are only bound by antibodies from one patient population but not the other using standard art techniques like those disclosed in the

instant specification, and they were unable to identify antigens which were exclusively bound by only one population. As such it does not seem reasonable that a skilled artisan would be able to identify new antigens or make mutant forms of f4 and f6 that comprise the properties recited in the instant method steps without performing unpredictable experimentation.

10. Claims 14 and 16-19 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention for the reasons of record.
The office action mailed November 20, 2006 states:

> Applicant has claimed a broad method that utilizes the genus of "ABPA-related recombinant allergens". The specification appears to teach that this genus of allergens can be used in diagnostic methods capable of discrimination with 100% specificity between ABPA and *A. fumigatus* allergic patients since antibodies that bind "ABPA-related recombinant allergens" are only found in ABPA patients and are never found in patients suffering from *A. fumigatus* allergy. The specification does not appear to explicitly define the term "ABPA-related recombinant allergens", but the disclosure indicates in lines 7-35 of page 4 that this term "includes any recombinant allergen, irrespective of origin" such as fragments of *A. fumigatus* allergens as well as "ABPA-related allergens and fragments derived from other sources, having one or more ABPA epitopes in common with an ABPA-related allergen from *A. fumigatus*." As such, the genus of "ABPA-related recombinant allergens" also reasonably encompasses variants of *A. fumigatus* allergens that differ in amino acids sequence from the naturally occurring *A. fumigatus* allergens by virtue of additions, truncations, internal deletions and amino acid substitutions which can be introduced into recombinant allergens. Applicant has not disclosed the structure (amino acid sequence) of any epitope of *A. fumigatus* allergens, and the only disclosed species that appear to support the recited genus of "ABPA-related recombinant allergens that discriminate with 100% specificity" appear to be rAsp f4 and rAsp f6 can be used in methods which discriminate between the two patient populations with 100% specificity (see Table 4 and lines 3-13 of page 15).
>
> The guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, § 1 "Written Description" Requirement make clear that if a claimed genus does not show actual reduction to practice for a representative number of species, then the Requirement may be alternatively met by reduction to drawings, or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the genus (Federal Register, Vol. 66, No. 4, pages 1099-1111, Fri. January 5, 2001, see especially page 1106 column 3).
>
> In The Regents of the University of California v. Eli Lilly (43 USPQ2d 1398-1412) 19 F. 3d 1559, the court held that disclosure of a single member of a genus (rat insulin) did not provide adequate written support for the claimed genus (all mammalian insulins). It should be noted that the specification discloses that rAsp f4 and f6 have different sequences and are different size proteins (40 and 28 kDa respectively) and presumably have different biological activities in *A. fumigatus*, and as such differ much more from one another than the genus of all mammalian insulins. Further note that f4 and f6 do not appear to share any common structure, and no common structure appears to be disclosed for the genus of "ABPA-related recombinant allergens". As such, f4 and f6 are not a representative number of species of the recited genus, and the only function is that the genus of allergens can be bound by antibodies. In Lily, the court also noted:

> "A definition by function, as we have previously indicated, does not suffice to define the genus because it is only an indication of what the gene does, rather than what it is. See Fiers, 984 F.2d at 1169-71, 25 USPQ2d at 1605-06 (discussing Amgen). It is only a definition of a useful result rather than a definition of what achieves that result. Many such genes may achieve that result. The description requirement of the patent statute requires a description of an invention, not an indication of a result that one might achieve if one made that invention. See In re Wilder, 736 F.2d 1516, 1521, 222 USPQ 369, 372-73 (Fed. Cir. 1984) (affirming rejection because the specification does "little more than outlin [e] goals appellants hope the claimed invention achieves and the problems the invention will hopefully ameliorate."). Accordingly, naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material."

The court has further stated that "Adequate written description requires a precise definition, such as by structure, formula, chemical name or physical properties, not a mere wish or plan for obtaining the claimed chemical invention." Id. at 1566, 43 USPQ2d at 1404 (quoting Fiers, 984 F.2d at 1171, 25 USPQ2d at 1606). Also see Enzo-Biochem v. Gen-Probe 01-1230 (CAFC 2002).

Therefore, it appears that the broad genus of "ABPA-related recombinant allergens" lacks adequate written description because there does not appear to be any correlation between structure and function. As such a skilled artisan would reasonably conclude that applicant was not in possession of the recited genus of "ABPA-related recombinant allergens" at the time the instant application was filed.

Applicant's arguments filed May 25, 2007 have been fully considered but they are not persuasive. Applicant argues that the specification discloses two antigens, f4 and f6, which are bound by ABPA patient antibodies but are not bound by antibodies from patients comprising *A. fumigatus* allergy, and that when this knowledge is coupled with screening methods discussed in the specification, a skilled artisan could practice the claimed invention without undue experimentation.

This argument is not persuasive because the test under written description is one of possession, not how to make and use the claimed invention. As stated in the rejection of record, applicant has disclosed two antigens, f4 and f6, which appear to comprise the properties recited in the instant method claims. These antigens do not appear to be similar to each other in structure even though they comprise similar functional properties, and as such there does not appear to be any common structure that gives rise to the shared property of being bound by antibodies from ABPA patients but not being bound by antibodies from *A. fumigatus* allergy patients. Therefore, it appears that the instant specification does not disclose an adequate number of species to support the breadth of the recited genus and does not disclose a common structure that correlates with the recited biological properties. Thus a skilled artisan would reasonably conclude that applicant was not in possession of the recited genus of allergens at the time the application was filed.

11. Claims 14 and 16-19 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention for the reasons of record.

The office action mailed November 20, 2006 states:

> Claims 14-19 are not claims as originally filed in parent application 09/319,806, of which the instant application is a continuation. In the remarks received 7/2/03 applicant indicates that claims 14-17 recite limitations from original claims 1-3 and 6. These claims do not appear to recite the limitation "which discriminate with 100% specificity between ABPA and allergic sensitization to *A. fumigatus*." The specification discloses in Table 4 and in lines 3-13 of page 15 that 100% specificity can be obtained by use of recombinant Asp f4 and f6. This disclosure does not indicate that any other allergens can be used in methods that discriminate between the two patient populations with 100% specificity. As such, the instant claims have combined a limitation of two specific species (100% specificity) to the broad genus of "ABPA-related recombinant allergens". The specification does not appear to teach that this broad genus comprises the recited limitation, and as such applicant's claim amendments received 7/2/03 have introduced new matter into the claimed invention.

Applicant's arguments filed May 25, 2007 have been fully considered but they are not persuasive. Applicant argues that the specification discloses two antigens, f4 and f6, which are bound by ABPA patient antibodies but are not bound by antibodies from patients comprising *A. fumigatus* allergy, and that when this knowledge is coupled with screening methods discussed in the specification, a skilled artisan could practice the claimed invention without undue experimentation.

This argument is not persuasive because applicant does not appear to have addressed where support for applying a limitation disclosed for specific species is disclosed as applying to the broad genus recited in the instant claims. As was indicated in the rejection of record, the claims under examination are not the claims as originally filed. All claim amendments must find support in the application as it was originally filed to prevent the introduction of limitations or ideas that were not conceived to be part of the invention at the time the invention was filed. Since support for applying the species limitation to the broad genus has not been located, it appears that the instant claimed methods comprise new matter.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 14 and 16-19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Borga, (Ph.D. dissertation from the Karolinska Institute, 1990) in view of Moser et al. (of record as reference ab on the 7/2/03 IDS) for the reasons of record. The office action mailed November 20, 2006 states:

> Borga teaches methods of detecting IgE antibodies that bind *A. fumigatus* allergens using in vitro immunoassays (see dissertation abstract). Borga identified 8 allergens that were only recognized by ABPA patients and 4 allergens which were only recognized in *A. fumigatus* allergy patients, and teaches that such differences are of diagnostic value (see particularly from line 36 of page 17 to line 15 of page 18 of the instant specification and the dissertation abstract). Note that these allergens of Borga discriminate with 100% specificity since the patterns of reactivity are patient-specific (see lines 12-15 of page 18 of the specification). Some of the allergens identified by Borga are disclosed as being intracellular (see dissertation abstract). These teachings differ from the instant claimed invention in that Borga did not produce recombinant forms of his *A. fumigatus* allergens.
>
> Moser et al. teach that the use of recombinant allergens in diagnostic assays offer the advantages of increased standardization and reproducibility over allergen extracts prepared from biological materials (see entire document, particularly the right column of page 2 and the last paragraph of the Discussion section).
>
> Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to perform the diagnostic method taught by Borga using recombinant allergens. Motivation to do so comes from the teachings of Moser et al. that recombinant allergens are better for diagnostic assays because they offer the advantages of increased standardization and reproducibility when performing such assays.
>
> It is noted that applicant has discussed at length the teachings of Borga in the instant specification yet has not submitted said reference on an IDS in this application. The examiner was able to locate the abstract of the dissertation but was not able to locate the full text of the document. Applicant is requested to submit a complete copy of the dissertation by Borga as part of the response to this office action so that the dissertation can be examined for other issues material to the patentability of the instant claimed methods.

Applicant's arguments filed May 25, 2007 have been fully considered but they are not persuasive. Applicant argues that:

> "At page 42, Borga discloses that 35 different IgE binding components were detected analyzing sera from the atopic allergy patients and 39 binding components were detected analyzing the ABPA sera, wherein 31 of these components were common to both groups while 4 intermediate components were detected only by sera from the atopic allergy patients and 8 minor or intermediate components were detected only by sera from ABPA patients. Figs. 10a and 10b at pages 43 and 44 of Borga illustrate strong, moderate and weak bands, but Applicants find no teaching by Borga as to the criteria for these categories or the criteria for no indicated bands and particularly whether no bands are actually 0.0% binding or binding below a certain threshold level. Thus, the teaching of Borga that a component "only" binds to sera from ABPA patients is not equivalent to a teaching of the present claim limitation of an allergen which discriminates with 100% specificity between ABPA and allergic sensitization."

And that:

> "Although Borga states that both major components and group- specific components could be of potential diagnostic value, Borga does not disclose how this diagnostic value could be turned into a diagnostic method, and particularly does not teach or suggest that ABPA could be distinguished from allergic sensitization to *A. fumigatus.*
> Accordingly, while Borga provides detailed information of *A. fumigatus,* Borga importantly provides no teaching or suggestion of any method for discriminating between ABPA and allergic sensitization, particularly with 100% specificity, as presently claimed."

These arguments are not persuasive. As stated in the rejection of record and restated by applicant, Borga discloses 4 antigens bound only by antibodies from allergy patients and 8 antigens bound only by antibodies from ABPA patients. As such, by testing patient sera from allergy and ABPA patients, Borga performed a method that discriminated between allergy and ABPA patients. While Borga does not use the phrase "100% specificity" 4 antigens are only detected in allergy and 8 antigens are detected only in ABPA. Since the 8 ABPA-specific allergens were never observed by Borga to be bound by antibodies from allergy patients, they are "100% specific"; if they were not, Borga would have categorized them in the group of antigens detected by both allergy and ABPA sera.

Further, applicant argues that Borga discloses that the identified antigens are of diagnostic value, but then argues that there is no teaching or suggestion of any method for discriminating between ABPA and allergic sensitization. Given that Borga discloses antigens that are detected only by ABPA sera or are only detected by allergy sera, and discloses that these are of diagnostic value, it appears that the only "missing" element is

an explicit statement from Borga to use the group of 4 antigens to detect allergy and to use the other 8 allergens to detect ABPA. Applicant is reminded that the courts have repeatedly ruled that motivation to combine elements can be explicitly or implicitly stated in the prior art or come from common knowledge of an artisan or common sense, and that for patentability, improvements to or combinations of prior at elements must amount to more than the predictable use of the prior art elements according to their established functions. See *KSR Int'l Co. v. Teleflex, Inc.*, 2007. In the instant case, it appears highly unlikely that a person of ordinary skill in the art would fail to appreciate that upon reading the disclosure of Borga, the group of 4 allergy-specific antigens are to be used to detect allergy and the 8 ABPA-specific allergens are to be used to detect ABPA.

The rejection is maintained.

Double Patenting

14. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In *re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

15. The rejection of claims 14 and 16-19 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 7, 8, and 12-16 of U.S. Patent No. 6,830,891 has been withdrawn in view of the terminal disclaimer filed on May 25, 2007 which was approved by the USPTO on June 11, 2007.

16. No claims are allowable.

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Szperka whose telephone number is 571-272-2934. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on 571-272-0841. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Szperka, Ph.D.
Patent Examiner
Technology Center 1600
August 6, 2007

8/2/07

G.R. EWOLDT, PH.D.
PRIMARY EXAMINER